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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,835	10/16/2003	James D. Sterling	530045.415C1	9435

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC  
701 FIFTH AVE  
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SEATTLE, WA 98104

EXAMINER
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NOGUEROLA, ALEXANDER STEPHAN

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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10/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto;"></div> <p style="text-align: center;"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/688,835	<b>Applicant(s)</b> STERLING ET AL.	
	<b>Examiner</b> ALEX NOGUEROLA	<b>Art Unit</b> 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed August 06, 2007 ("Amendment") have been fully considered but they are not persuasive. The thrust of Applicant's arguments is that Seul is non-analogous art because "The software of Seul is directed to controlling particles in a colloidal suspension." "Thus, while the software of Seul may be suitable for controlling particles in a fluid body, such is fundamentally different than controlling fluid bodies themselves as taught by Becker and Shenderov." See page 7 of the Amendment.

The Examiner respectfully disagrees. Seul is more analogous to Becker and Shenderov than Applicant acknowledges. Seul, Becker, and Shenderov are each directed to a device and method for using at least an electrical field to selectively move a variety of substances including at least biomolecules or biochemicals.

Seul discloses an apparatus for and method of using an electrokinetic force to move particles such as '... diverse colloidal particles including: beaded polymer resins ("beads"), lipid vesicles, whole chromosomes, cells and biomolecules including proteins and DNA, as well as metal or semiconductor colloids and clusters.' See the abstract and col. 02:41-50.

Becker discloses an apparatus for and method of using "... a dielectrophoretic force, an electrophoretic force, an optical force, a mechanical force, a mechanical force, or any combination thereof ..." to move "... a droplet of water, a droplet of reagent, a droplet of solvent, a droplet of solution, a droplet of sample, a particle or cell suspension, a droplet of intermediate product, a droplet of a final reaction product, or a droplet of any material." See the abstract; col. 05:27-36; and col. 02:50-63. In an example Becker moves actin, avidin, and an enzyme. See code inset in columns 23-24.

Shenderov discloses an apparatus for and method of manipulating "... small volumes of fluids (microfluidics), in such a manner so as to enable rapid dispensing and manipulation of small isolated volumes of fluids under direct electronic control." See col. 01:10-15. For example, droplets containing molecules may be manipulated, "... solid-phase synthesis of immobilized compounds and liquid-phase synthesis using immobilized reagents, resins and catalysts are possible. Another use of such an array is a fraction collector for capillary electrophoresis or similar separation methods, ..." See col. 05:29-37.

Although the specific means and method for creating an electrical force to move substances is different in Seul than in both Becker and Shenderov in that Seul uses light-controlled electrokinesis while Becker does not use light to cause electrokinetic movement and Shenderov does not use light to cause electrowetting, Seul, Becker, and Shenderov are all using electrodes to create an electrical field to move substances in a microfluidic system. It is noteworthy that Seul does teach automated or pre-programmed movement of substances in addition to the real-time "dragging" and

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dropping" of substances with a mouse. See col. 35:54 – col. 36:02. Thus, they are not incompatible options as suggested by Applicant. See the first full paragraph on page 7 of the Amendment.

Applicant also argues, "Even if motivated [to use drag and drop as taught by Seul in the invention of Becker or Shenderov], the teachings [of Seul] would require significant modification to work successfully, if at all." See page 7 of the amendment. In particular, Applicant argues that the software used by Seul is not compatible with the devices of Becker and Shenderov. The Examiner respectfully disagrees. The software used by Seul would require only minor modification within the skill of one of ordinary skill in the art. Seul implemented his invention using "... National Instruments' LabVIEW (Vs. 5.1) software which provides a graphical user interface." See col. 36:47-63 and col. 44:28-61. LabVIEW is a widely used software program for interfacing a computer to an analytical instrument for instrument control, data acquisition, and processing. It can be used with many types of instruments so long as the instrument response can be converted into an electrical signal sent to the computer. It is also very user friendly. In fact, it is even used in undergraduate level chemistry classes:

National Instruments' LabVIEW software system has evolved as the industry's standard for control of instrumentation and acquisition of experimental data. Of LabVIEW's many features, perhaps the most useful is the intuitive, graphical nature of the programming environment and user interface. From an educator's point of view, the graphical nature of LabVIEW is ideal for students at all levels of the chemistry curriculum. LabVIEW allows students to draw a visual representation of a software process rather than writing a procedural code following an exact syntax. Another important pedagogical advantage of LabVIEW is its unequalled breadth and depth. Novices can be begin programming and using LabVIEW to acquire data through an interface board with just a few class periods of practice, yet LabVIEW is extensive enough to fulfill the needs of experts who must acquire experimental data under the most demanding

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research conditions. [emphasis added] See the last paragraph in the second column on page 1107, bridging to page 1108 of Drew "Integration of National Instruments' LabVIEW Software into the Chemistry Curriculum," Vol. 73 No. 12 December 1996, Journal of Chemical Education, pp. 1107-1111.

LabVIEW was chosen as the data acquisition program for the course because it facilitates fast program development, provides many powerful built-in functions, and has universal acceptance in research and manufacturing settings. In this graphical language the program is written by placing and connecting icons that represent various built-in and user-developed functions on a block diagram. The connection of icons results in data flow execution of program nodes. This is ideally suited for the collection and distribution of data in analytical experiments. [emphasis added]

See Gostowski, "Teaching Analytical Instrument Design with LabView," Vo. 73 No. 12 December 1996, Journal of Chemical Education, pp. 1103-1107.

Thus, if LabView is easy enough for an undergraduate chemistry student to use, one with ordinary skill in the art at the time of the invention would have been able to adapt the "drag and drop" LabView program used by Seul to work with the devices of Becker and Shenderov.

So, for the reasons set forth above and because the amendments to claims 26-28 only correct a typographical error, all of the rejections of the claims 24-30 under 35 U.S.C. 103(a) are maintained.

***Status of the Objections and Rejections pending since the Office action of***

***April 19, 2007***

2. The objection to claims 26-28 is withdrawn.
3. The rejections of claims 24-30 under 35 U.S.C. 103(a) are maintained.

***Final Rejection***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alex Noguerola  
Primary Examiner  
AU 1753  
October 4, 2007